

THE RELATIONSHIPS BETWEEN SELECTED VARIABLES AND
FULL-TIME INSTRUCTIONAL SALARIES IN COMMUNITY COLLEGES
IN THE STATE OF FLORIDA

BY

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Abstract of Dissertation Presented to the Graduate Council
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By

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This study sought to determine if certain socio-economic characteristics were related to instructional salaries in community colleges in the state of Florida. Three levels of salary were used as the dependent variables. The related literature and research were reviewed to determine relevant independent variables. The five variables selected were enrollment, total population of the community college district, per capita Effective Buying Income of the community college district, percentage of classes taught by adjunct faculty, and unionization.

The sample of institutions included the twenty-eight community college districts in the state of Florida.

The percentage of classes taught by adjunct faculty contributed little to variance in faculty salaries. Strongest variables were Full-Time Equivalent student enrollment, and Effective Buying Income per capita; the latter served as a wealth measure of the community college districts. The fact that institutions used adjunct faculty to teach approximately 25 percent of their classes led to the hypothesis that full-time faculty salaries would be systematically related to use of adjunct faculty. However, the relationships were very weak. It is suggested that other research designs and other variables be utilized to explore these relationships.

The five independent variables explained only 30 percent of the variance in average salaries of persons with doctoral degrees but 51 percent and 41 percent of the variances in the two master's degree salary levels. It is suggested that the cost-based, full state funding method of community college support in Florida may have reduced the expected salary ranges among institutions. Therefore, it is recommended that total compensation (salary plus benefits) of instructional faculty be used in other studies since this study delimited compensation comparison to salary.

CHAPTER 1 INTRODUCTION

Educational institutions in America experienced unusual enrollment growth in the period between World War II and the early 1970's. Every sector of education grew; elementary, secondary, higher education, public and private. Few other institutions have experienced the dynamic growth exhibited by American higher education during those years. To support this unprecedented growth, an accompanying seven-fold increase was made in higher education budgets. State government appropriations for public higher education increased 375 percent during the ten-year period of 1960-1970 (Quindry and Masten, 1976).

A large part of this phenomenal growth in public higher education can be attributed to a new institution, the community college. This different institution, which had evolved from the junior college, got its direction and emphasis from President Harry Truman's Commission on Higher Education.

Whatever form the community college takes, its purpose is educational service to the entire community, and this purpose requires of it a variety of functions and programs. It will provide college education so as to remove geographic and economic barriers to educational opportunity and discover and develop individual talents at low cost and easy access. But in addition the community college will serve as an active center of adult education. It will

attempt to meet the total post-high school needs of its community. (President's Commission on Higher Education, cited in Fields, p.63).

Public community college enrollments increased 930 percent between 1960 and 1979. After 1975 approximately 50 percent of all first-time college students enrolled in a community college, including increased numbers of older part-time students who entered college to get the education they had missed. (Breneman and Nelson, 1981)

By 1980 postsecondary education began facing grave financial difficulties. Inflation was double digit. Federal funding was decreasing, thus shifting more of the burden to the states. Many states' revenues were not keeping pace with inflation. More agencies began competing for available dollars. While it is generally agreed that all levels of government have a responsibility to support higher education, that support is dependent upon expenditure priorities and available revenue at any given time. (Quindry and Masten, 1976)

Since public community colleges employed more than 87,000 full-time and 115,400 part-time faculty members during 1979 (Breneman and Nelson, 1981), it was apparent that adjustments would be necessary if funding continued to diminish.

The literature on higher education finance has tended to combine public two-year institutions with all other types of institutions of higher education. Because of this tendency, it is difficult to isolate substantive

literature which addresses funding changes for community colleges. Further, Breneman and Nelson make the point that of the ten states with largest enrollments in two-year institutions, only Washington and Florida do not depend to some degree on local financing. This means that in most states, community colleges face the same basic monetary issues as elementary and secondary schools, a condition which makes their funding subject to local property tax limitation efforts.

Florida's community college system is cost-based. The funding formula is based on actual costs of instruction per Full Time Equivalent (FTE) student. Florida statutes further place a limit on the number of FTE students to be funded for each institution. This limit is based on enrollment projections, which create a number of problems relative to faculty employment and assignments. If enrollments exceed projections, an adjustment has to be made either to teach larger classes or to hire part-time instructors at lower salaries. This use of part-time instructors can provide an important management option. Rather than cutting or increasing permanent staff, the employer can simply reduce the number of part-time personnel to accommodate fluctuating enrollments.

If less financial support is available for institutions of higher education, what will be the effects on individual institutions? Where will budget adjustments

be made? Since salaries comprise the major part of any institution's budget it is important to know what factors determine salaries paid by the institution.

The Problem

The purpose of this study was to determine what relationships exist, if any, between selected socio-economic variables and salaries paid to full-time community college instructional personnel in the twenty-eight community college districts in the state of Florida. Further, the study evaluated the importance of other selected factors as they may relate to instructional salaries, specifically the effect that utilization of part-time instructors may have on full-time professional salaries.

The specific questions of this study were:

1. Is there a relationship between the widespread use of adjunct faculty and salaries paid to full-time instructional personnel?
2. Is there a relationship between the size of the population of the community college district and salaries paid to full-time instructional personnel?
3. Is there a relationship between the size of the institution and salaries paid to full-time instructional personnel?
4. Is there a relationship between full-time instructional personnel salaries and the

Effective Buying Income per capita of the community college district?

5. Is there a relationship between the presence of a faculty bargaining unit and full-time instructional salaries of the community college district?
6. Which independent variables account for the largest percentage of variance in the mean daily salary for individuals holding doctoral degrees?
7. Which independent variables account for the largest percentage of variance in the mean daily salary for individuals with master's degree plus 30 credit hours?
8. Which independent variables account for the largest percentage of variance in the mean daily salary for individuals at the master's degree level?

Limitations

This study is confined to the twenty-eight community college districts in the state of Florida. The method of funding for these institutions is a cost-based formula. Therefore, this study cannot be generalized beyond these twenty-eight districts.

Delimitations

In salary studies reviewed fringe benefits were sometimes included, especially if unionization was the basis for study. Estimates of fringe benefits were not included in this study because part-time instructors do not receive the same fringe benefits as full-time instructional personnel and it appeared that salaries were a more accurate basis of comparison. Quality is sometimes an important factor when comparing public and private institutions and two-year and four-year institutions. Because the community colleges in Florida have a common funding formula, and common governance, no attempt was made to attach a degree of quality to the institutions in this study.

Many studies have dealt with differences in salaries paid to males and females. What may appear as sexual discrimination must be researched to determine if the discrimination issue is valid and not related to male longevity in the position and/or higher levels of education. It was beyond the scope of this study to deal with this issue.

Collective bargaining was considered as a dummy variable. This may allow conclusions as to whether or not unionization was a factor in determining instructional personnel salaries. The primary purpose of this study was not to explore the effects of unionization on salaries.

This study looked at data of twenty-eight community college districts. No attempt was made to compare salary data within the institutions. Therefore, this study should not be compared with studies dealing with factors inside a single institution.

Justification for the Study

Many economic changes are taking place in institutions of higher learning in general and in institutions that offer the first two years of postsecondary instruction in particular. This study should lead to a better understanding of the factors which have the greatest impact on instructional personnel costs. This study may also add to our understanding of the practical use of large numbers of adjunct faculty and the implications thereof. Finally, the study may suggest substance and methodology for a broad-based research effort that utilizes a national sample of community colleges.

Assumptions

1. Population figures were taken from the Florida County Comparisons, 1981. The source for these data was the 1980 Census of Population, U. S. Department of Commerce, Bureau of the Census. The reliability of the data was assumed.
2. Salary data were generated by the State of Florida Division of Community Colleges. No attempt was

made to contact individual institutions for verification of these data.

3. Effective Buying Income by County was secured from Sales and Marketing Management Magazine. These data were used as the basis to aggregate from county to districts. It was necessary to assume reliability of data as given.

Definition of Terms

Adjunct Faculty. Part-time instructional personnel as opposed to contracted full-time instructional personnel.

Doctoral Level Personnel. Instructional personnel with an earned PhD, EdD, or DBA.

Dummy Variable. Method for including qualitative variable in regression model.

Effective Buying Income. Personal income less personal tax and non-tax payments, i.e. disposable personal income.

Full-Time Equivalent Enrollment. The total annual student semester hours registration divided by thirty.

Master's Level Personnel. Instructional personnel with an earned master's degree.

Master's Level plus 30 Personnel. Instructional personnel with an earned master's degree plus 30 semester graduate hours beyond that level.

Population of District. Total number of residents of the community college district.

Unionization. Whether or not institution has a collective bargaining agreement covering instructional personnel with a union or unions.

Procedures

Variables of Interest.

In order to compile information regarding adjunct faculty employed by the twenty-eight community college districts in Florida, a data collection instrument was devised and sent to each community college. The percentage of classes taught by adjunct faculty in each institution was one variable of interest to study.

From a review of literature and research on instructional salaries the following variables were chosen: total FTE enrollment of institutions studied, population of the community college districts, per capita Effective Buying Income of the community college district, and unionization. Along with percentage of classes taught by adjunct faculty, these variables were chosen for study because they seem to be related to an institution's ability and perhaps its propensity to spend for instructional salaries.

The dependent variables chosen were mean daily rate of salary for instructors with doctoral degrees, mean daily rate of salary for instructors with master's degree plus thirty additional semester hours of course work, and

mean daily rate of salary for instructors with master's degrees. These variables were chosen because they represent typical salary factors utilized by community colleges. The five independent variables were used in regression analysis with each training level for all twenty-eight community colleges in Florida.

Statistical Procedures.

This study sought to determine factors systematically associated with various salary levels in community colleges in Florida. After variables related to instructional salaries were identified from a review of research and related literature, these variables were subjected to multiple regression analysis. The three dependent variables were identified for use in the multiple regression equation as follows:

Y₁ mean daily rate of salary for full-time instructional personnel with doctorate degree.

Y₂ mean daily rate of salary for full-time instructional personnel with a Master's degree plus 30 additional graduate hours.

Y₃ mean daily rate of salary for full-time instructional personnel with a Master's degree.

The five independent or explanatory variables used in this study were identified for use in the multiple regression equation as follows:

X₁ total FTE of the institution

- X₂ total population of the community college district.
- X₃ per capita Effective Buying Income of the community college district.
- X₄ percentage of classes taught by part-time faculty.
- X₅ unionization (dummy variable)
- 0 = No 1 = Yes

Multiple regression is a general statistical technique through which relationships between a dependent or criterion variable and a set of predictor or independent variables can be analyzed. In this study multiple regression was used as a descriptive tool. The most important uses of the technique as a descriptive tool are to find the best linear prediction equation and evaluate its prediction accuracy, and to control for other confounding factors in order to evaluate the contribution of a specific variable or set of variables (Nie et al., 1975, p. 321).

Multiple regression was the method of analysis used in all of the salary studies reviewed; however, some of the reviewed studies failed to look at partial correlation coefficients. Partial correlation provides the researcher with a single measure of association describing the relationship between two variables while adjusting for the effects of one or more additional variables (Nie et al., 1975, p. 302).

Partial correlation analyses were an important procedure for inclusion in this study.

Data Sources:

Data relating to full-time instructional salaries and FTE generation in community colleges in Florida were obtained from the Division of Community Colleges, Department of Education, State of Florida. Population data were taken from the Florida County Comparisons, 1981. The source for this data was the 1980 Census of Population, U. S. Department of Commerce, Bureau of the Census. Effective Buying Income data were generated by using the July, 1981, Sales and Marketing Management Magazine information as the data base for aggregation. Information pertaining to adjunct faculty was secured by use of a survey instrument sent to each community college in Florida.

Organization of the Research Study

The research study contains the following four chapters:

- Chapter I: An introduction to the study and an overview which includes the statement of the problem, delimitations and limitations, justification for the study, assumptions, definitions, and procedures.
- Chapter II: A review of literature and research studies on faculty salaries.

Chapter III: A presentation and analyses of the study
results.

Chapter IV: Summary, conclusions, and recommendations.

CHAPTER II REVIEW OF RELATED LITERATURE

To provide a basis for examination of instructional salaries in community colleges in the state of Florida, an understanding of community college funding is essential. This review of literature briefly addresses higher education growth in general and an in-depth discussion of community college funding. Formulas employed in the United States are examined along with a more thorough review of the Florida funding formula for community colleges.

Teacher and faculty salary studies were reviewed for the purposes of determining and selecting of variables for study. Some studies dealing with the effects of unionization are included but only for purposes of verification of relevant variables in salary studies.

An important section of this literature review deals with institutional uses of adjunct faculty and the effect their use may have on full-time faculty salaries.

This review of literature and related research provided the basis for the variables selected for use in this study.

Growth in Higher Education

Quindry and Masten (1976), in their review of the financing of postsecondary education from 1950-1972

found that there were consistent increases in the level of financing until 1968 but a decline thereafter. A number of reasons existed for the strong support afforded higher education during those early years. The nation suffered an intellectual humiliation following the Russian Sputnik achievement. A rush began to support educational efforts to keep this country at least even with Russian technology. Veterans of World War II were another factor in this era of strong support. The government guaranteed veterans an education, and with thousands taking advantage of the educational opportunities enrollments burgeoned and accompanying financial support increased. While these changes were taking place, the national economy was growing and federal funds were plentiful in the 1960-1968 period but dissipated rapidly, according to Quindry and Masten (1976). One reason for higher education growth during the early part of the 1950's was the move to make education available to citizens who were heretofore denied for economic and/or logistic reasons. This move brought about expansion most notable in the public sector. By the middle 1960's, public higher education enrollment was exploding across the landscape (Jenny, 1975, p. 29). At about this time the community college began growing at an accelerated rate.

In the fall of 1959 there were 3,402,297 students enrolled in the colleges of the United States. This

represented an increase of one million students from the previous peak year of 1949 (Fields, 1962, p.4).

In 1960, 315 public two-year colleges existed with an enrollment of 392,000 students or 11 percent of total higher education enrollment. By 1979, 926 public two-year colleges enrolled 4,057,000 students, 35 percent of the total higher education enrollment and more than the combined higher education enrollment for 1959 (Breneman and Nelson, 1981). The increase in enrollment in public community colleges from 1960 to 1979 was 930 percent. Since 1975 about one half of all first-time enrollees attend community colleges.

The same reasons that higher education in general expanded during this time were responsible for the community college growth. Additionally, the community colleges pioneered the "open door" policy which offered greater accessibility (Breneman and Nelson, 1981). The timing was ideal since the national emphasis was shifting to one of providing equal opportunity for everyone. Community colleges could respond quickly to community needs. Older adults, mostly part-time students, were also finding their places in community colleges, further expanding enrollments. The community college, because of its community base for enrollment, grew in both traditional and non-traditional program areas.

Community Colleges

Junior colleges were a product of the early twentieth century according to Medsker (1960). As more young people attended and graduated from high school in the early 1900's, increased interest in higher education created a strain on the universities. Pressure from the universities caused public schools to begin offering "post graduate" courses to meet the growing need. This push to extend high school education beyond the twelfth grade, while stopping short of the four-year college, was an important strand in the development of the two year college (Breneman and Nelson, 1981). Two-year institutions were encouraged by both high schools and universities. By 1920 the idea of the junior college was deeply rooted in educational programs and establishment of various types of junior colleges was taking place throughout the nation. In 1930, there were 277 of these two year institutions with a combined enrollment of over 55,000. By 1940 the number of institutions had grown to 456 with an enrollment of 149,854. The numbers continued to grow. Four hundred eighty-three two-year institutions enrolled over 242,000 by 1950 (Biennial Survey of Education in the United States, 1958, p.18).

While the number of junior colleges had grown steadily since the turn of the century, the major growth in two-year institutions began after 1947 when President Truman's

Commission on Higher Education called for a new emphasis in postsecondary education. This commission set the tone for the "new" community college. While these two-year institutions had been predominately private in governance, this trend was reversed by 1952 when public junior colleges outnumbered private ones (Gleazer, 1959). "The gradual emergence of the concept of a community-serving institution marks the development of the community college movement out of the junior college efforts" (Fields, 1962, p. 2).

The returning military with unprecedented veterans' benefits and a new social emphasis on equal opportunity for education caused great enrollment increases in institutions of higher education during the 1950's. Acceptance of the lifelong-learning concept brought adults into these institutions, while great increases in the number of high school graduates was another major growth factor. According to Fields (1962), four-year universities were more research oriented and tended to be uninvolved with the local community. The pervading feeling before World War II was that it was broadening for youngsters to get away from home for college. However, the expense greatly limited the number of persons able to attend distant universities. No financial assistance was available in the form of government grants and loans. In order to comply with the new demand for local postsecondary programs, state legislatures responded by establishing community colleges. These institutions began growing

at such a tremendous rate that state governance boards became alarmed. Concern was generated by the rapid growth because it appeared that state legislators were promising a junior college in each of their districts (Conant, 1964). These concerns were based on the prospects that uncontrolled community college growth might have on programs and funding at four-year institutions. No one was quite certain of the mission of the community college; therefore, it was to be feared if not contained.

Much discussion began about the community college mission without much consensus. It was generally agreed, however, that these institutions should be integral parts of the particular communities served and that they should serve all the needs possible. The Southern Regional Education Board Commission on Goals for Higher Education in the South recommended the development by each state of a strong system of community colleges and further defined their scope (Report for Florida Community Colleges, 1979-1980, Part II, p.5). This Report stated the following:

These non-residential institutions, generally located in urban areas, can serve a variety of functions for which four-year institutions are not required. Among these are freshman and sophomore college courses, vocational and technical programs, guidance and counseling services, specific programs to meet community needs, and adult education.

The community college is economical for both student and taxpayer. It can be responsive to local needs and a vital force in the community.

These colleges, as now organized, are parts of the local public school programs, separate two-year state colleges, or affiliates of the state university

system. Whatever the basis of the organization, however, three things are essential:

1. They must be integral parts of the state system of higher education and fully coordinated with the other parts of the system.
2. They must resist pressure to expand into four-year institutions, concentrating rather on achieving excellence in their two-year programs.
3. Their distinctive function must be recognized and respected. They are neither mere extensions of the high school nor decapitated versions of the four-year college.

By the late 1970's educators began questioning the future mission of the community college movement. Declines in the number of college-age students were certain. The prospect of less federal funding in the 1980's was very real. Not only were funds cut for the institution programs but also funds were cut for student grants and loans as well.

With limited funding a reality, other institutions were anxious to tap the student population heretofore the exclusive clientele of community colleges. After all, community colleges had not proven they could do the job better; they simply had expressed a willingness to do the job that society wanted done (Cross, 1981). In an earlier era community colleges were not challenged in their effort to serve the unmet needs of society. Breneman and Nelson (1981) concluded that questions of the future mission of community colleges would become entangled with questions of finance as other institutions reached out for new populations to serve.

Competition for both students and funds will be intense in the 1980's. With increased competition for students and funds, those states with planned systems of two-year institutions could better respond to these changes. One state with a master plan for community colleges was Florida.

The first public two-year institution in Florida was Palm Beach Junior College. From 1933 until 1947 it remained the only public two-year college. In that year, St. Petersburg Junior College changed from private to public, and in 1948 Pensacola Junior College was established, and Chipola Junior College changed from private to public. In 1955 the legislature established the Community College Council. The Council's report in 1957 recommended a plan for establishing a public community college system in Florida. These institutions, which would provide postsecondary education, were mandated to be within commuting distance of 99 percent of the population. The report was approved by the State Board of Education and the legislature authorized creation of the Division of Community Colleges under the State Department of Education. Funds were appropriated for six new community colleges: Gulf Coast Community College, Central Florida Community College, Daytona Beach Community College, Manatee Junior College, North Florida Junior College, and St. Johns River Community College. The Master Plan was completed in 1972 with the opening of Pasco Hernando Community College. These twenty-eight institutions serve the 67 counties in the state of Florida. (See Table 1 and Map)

Community colleges in Florida are a part of the State system of public instruction:

State community colleges shall consist of all public educational institutions operated by community college district boards of trustees under statutory authority and rules of the State Board of Education and shall maintain the primary responsibility for lower-level undergraduate instruction. A community college may be authorized by the State Board of Education to operate a department designated as an area-vocational education school and authorized to operate adult high schools. These institutions may grant the associate in arts and associate in science degrees, certificates, awards, and diplomas. The total program offerings of the community colleges may include, but not be limited to, courses as components of programs leading to the above-mentioned degrees, certificates, awards, and diplomas; vocational and technical offerings leading directly to employment; compensatory, adult basic elementary, and secondary education; other general or liberal arts courses sought by the citizens of the community for personal development; and other community services. (Section 240.301 Statutes of the State of Florida)

The Report for Florida Community Colleges 1979-1980, Part II, gives the following descriptions and relationships of the various organizational entities to which each community college is related:

- A. The State Board of Education is the state agency designated to provide and establish the framework within which the community colleges may operate in Florida. Section 229.012, Florida Statutes, states that the State Board of Education shall consist of the governor, secretary of state, attorney general, comptroller, treasurer, commissioner of agriculture, and the commissioner of education. It further states that the governor shall be the chairman of the board and the commissioner of education shall be its secretary and executive officer. The State Board is given responsibilities for community colleges in Section 240.301 - 240.379, Florida Statutes, which includes the following specific responsibilities:

1. prescribe minimum standards for community colleges.
2. approve planning and construction of facilities.
3. authorize the matriculation or tuition fees to be charged to students
4. adopt rules relating to preparation and approval of community college budgets.
5. adopt rules for community college teachers relating to certification, tenure, leaves of absence of all types, including sabbaticals, etc.

- B. The State Community College Coordinating Board is comprised of eleven (11) members appointed in accordance with Section 240.307, Florida Statutes. The Coordinating Board consists of nine (9) incumbent members of local boards of trustees, the president of the Florida Junior College Student Government Association, and one lay member. All are appointed by the Governor, approved by four members of the State Board of Education, and confirmed by the Senate in regular session. Each member is charged with the responsibility for serving the entire state in terms which vary from one to four years.

With the help of its standing committees-- executive, accountability, programs and quality, finance and capital outlay, rules, governance, and policies--the Coordinating Board develops procedures and policies pursuant to the governance of the state community colleges for recommendation to the State Board of Education. The Council of Presidents, members of local boards of trustees, and community college employees also serve on standing committees to advise and recommend actions to the Coordinating Board.

Specific responsibilities include the provision of programs, adherence to rules and procedures, recommendations of standards, dissemination of information, inter-institutional cooperation, and the establishment of criteria for district boundaries. The Coordinating Board concurs in the appointment of the chief administrative officer, who is the Director of the Division of Community Colleges, and is also responsible for reviewing and administering the state's program of financial support for its community college system. Division personnel provide staff services to the Coordinating Board.

- C. Department of Education. Section 229.75, Florida Statutes, provides that the Department of Education shall act as an administrative and supervisory agency under the direction of the State Board of Education. The law specifically details the functions of the Department as providing professional leadership and guidance, and in carrying out policies, procedures, and duties authorized by a law or by the State Board of Education as necessary to attain the purpose and objectives of the School Code.
- D. State Commissioner of Education. The Commissioner of Education, as Secretary of the State Board of Education, has both general and specific responsibilities relating to community colleges. The laws of the State, as well as State Board Rules, specify that in addition to these general responsibilities for the community college he shall approve budgets and act as executive officer of the State Board of Education relating to community college recommendations.
- E. District Board of Trustees is the corporate body created under statutes to govern and operate the community college. Specific duties and powers of boards of trustees are enumerated in Section 240.313, Florida Statutes.
- F. The Division of Community Colleges was organized in the Department of Education in July 1957, pursuant to a recommendation of the Community College Council. It operates on the same legal basis as other divisions of the Department (Section 229.76, Florida Statutes), and is responsible for the coordination of community college programs and the implementation of recommendations concerning the development of community colleges in Florida.
1. The authority and responsibility of the Division of Community Colleges are contained in the following Florida Statutes: Sections 20.15, 228,041, applicable sections of Chapter 229, and 240.301-240.379.
 2. In accordance with Section 20.15, Florida Statutes, the State Board of Education has assigned to the Division of Community Colleges the powers, duties, responsibilities, and functions necessary to insure the greatest possible coordination, efficiency, and effectiveness of the community college system in Florida.

TABLE 1
FLORIDA COMMUNITY COLLEGES AND COUNTIES SERVED

Brevard Community College 1519 Clearlake Road Cocoa, Florida 32922 (Brevard County)	Indian River Community College 3209 Virginia Avenue Fort Pierce, Florida 33450 (St. Lucie, Indian River, Martin Okeechobee Counties)
Broward Community College 225 E. Las Olas Boulevard Fort Lauderdale, Fl. 33301 (Broward County)	Lake City Community College Lake City, Florida 32055 (Columbia, Baker, Dixie, Gilchrist Union, Counties)
Central Florida Community Coll. P. O. Box 1388 Ocala, Florida 32670 (Marion, Citrus, Levy Counties)	Lake-Sumter Community College Leesburg, Florida 32748 (Lake, Sumter Counties)
Chipola Junior College Marianna, Florida 32446 (Jackson, Calhoun, Holmes, Liberty, Washington Counties)	Manatee Junior College 5840 26th Street West Bradenton, Florida 33507 (Manatee, Sarasota Counties)
Daytona Beach Community College P. O. Box 1111 Daytona Beach, Florida 32015 (Volusia, Flagler Counties)	Miami-Dade Community College 1011 S.W. 104th Street Miami, Florida 33176 (Dade County)
Edison Community College Fort Meyers, Florida 33907 (Lee, Charlotte, Collier Counties)	North Florida Junior College 1000 Turner Davis Drive Madison, Florida 32340 (Madison, Hamilton, Jefferson, Lafayette, Suwannee, Taylor Counties)
Florida Junior College at Jacksonville District Office 210 N. Main Street Jacksonville, Florida 32202 (Duval, Nassau Counties)	Okaloosa-Walton Junior College Niceville, Florida 32578 (Okaloosa, Walton Counties)
Florida Keys Community College Key West, Florida 33040 (Monroe County)	Palm Beach Junior College 4200 Congress Avenue Lake Worth, Florida 33461 (Palm Beach County)
Gulf Coast Community College 5230 W. Highway 98 Panama City, Fl. 32401 (Bay, Gulf Counties)	Pasco-Hernando Community Coll. 2401 State Highway 41, North Dade City, Florida 33525 (Hernando, Pasco, Counties)
Hillsborough Community College P. O. Box 22127 Tampa, Florida 33622 (Hillsborough County)	Pensacola Junior College 1000 College Boulevard Pensacola, Florida 32504 (Escambia, Santa Rosa Counties)

TABLE 1 (continued)
FLORIDA COMMUNITY COLLEGES AND COUNTIES SERVED

Polk Community College
999 Avenue H. N. E.
Winter Haven, Florida 33880
(Polk County)

St. Johns River Community College
5001 St. Johns Avenue
Palatka, Florida 32077
(Putnam, Clay, St. Johns Counties)

St. Petersburg Junior College
P. O. Box 13489
St. Petersburg, Florida 33733
(Pinellas County)

Santa Fe Community College
P. O. 1530
Gainesville, Florida 32602
(Alachua, Bradford Counties)

Seminole Community College
Sanford, Florida 32771
(Seminole County)

South Florida Junior College
600 W. College Drive
Avon Park, Florida 33825
(Highlands, Hardee Counties)

Tallahassee Community College
444 Appleyard Drive
Tallahassee, Florida 32304
(Leon, Gadsden, Wakulla Counties)

Valencia Community College
District Office - 1 W. Church St.
P. O. Box 3028
Orlando, Florida 32802
(Orange, Osceola Counties)

NOTE: DeSoto, Franklin, Glades,
and Hendry Counties are not part
of any college district.

MAP OF FLORIDA COMMUNITY COLLEGES



State of Florida
Department of Education
Tallahassee, Florida

For more explicit details the reader is referred to the specific statutes of the state of Florida.

Community College Financing Plans

An examination of community college finance plans may lead to an understanding of the problems resulting from enrollment changes and associated funding cutbacks. As many finance plans exist as do community college systems. For funding purposes many states treat community colleges as secondary institutions. Other states incorporate community college funding into the established method for funding four-year institutions of higher education. In some states community colleges are funded according to a specific plan designated only for those two-year institutions. While it is beyond the scope of this study to deal with the mission and philosophy of the various community college systems, the reader is reminded of the link between funding and mission/philosophy since financing is very often related to the mission of the institutions as seen by the fund granting bodies. In times of affluence many needed community based non-credit programs may be acceptable. As revenue patterns change so may the mission of the institution with respect to needs of the community as seen by funding agencies. Some funding methods are more flexible than others as evidenced by the following review of finance plans. Breneman and Nelson (1981) concluded

that no "best" plan exists for financing of community colleges. They also observed

that disputes over financing policies and procedures often disguise fundamental disagreements over the purpose, mission and priorities of community colleges; much of the criticism of current financing formulas, therefore, is misdirected because the problems are substantive, not technical. (p.161)

Garms (1978) identified three theoretical models for funding community colleges. These are market economy models, planned economy models, and mixed models. An examination of each model follows.

Market economy model. All institutions under this model would be private without any form of governmental aid. Free market economists favor this type of private system. The system would tend to be self-regulated and not duplicate services. Wealthy students could purchase as much education as wanted but less fortunate individuals could not afford this sort of self supporting system. Two variations to this model would be a private system with government grants to students and a private system with government grants to institutions.

The private system with student grants would provide more opportunity for needy students to attend these institutions. This strategy could be accomplished with a system of educational vouchers to be used at the institution of choice. This could be done on a selective basis for needy students only. Non-selectivity would be much like a payroll deduction plan. This tax would entitle each person to a

certain number of years of education to be acquired all at one time or throughout one's lifetime.

The private system with government grants to institutions would involve direct subsidization by the government--this would surely mean increased government controls.

Planned economy model. This system is patterned after the economic system in socialist countries. The planning would be centralized with no profit motive as a regulator, and with an obvious lack of diversity. The two versions of this model are state financing with centralized control and state financing with some decentralization of control. The state financing with centralized control system would eliminate any local autonomy either in the spending of the budget, selection of students, or programmatic decisions.

This same system with some decentralization of control would give local autonomy to the districts. This approach allows individual colleges to respond to the needs of the local community by providing local control over the expenditures.

Mixed models. The two previously discussed models represent extremes. The mixed models are less extreme and thus more palatable. The distinguishing feature is a joint financial/control effort between the state and local governments. The four types of mixed models differ by the method in which the state and local shares are determined. The first sub-model is the percentage matching system. Under this system the state provides a set percentage of the budgets and the remainder is raised locally. This model allows

the community college to set its own budget and tends to be disequalizing since wealthier communities can raise greater amounts of revenue.

The flat grant system gives each college a set amount of dollars per full-time equivalent student. The rest of the budget must be raised by the college through taxation and/or tuition. This approach may also be disequalizing for the same reason noted for the percentage of budgets method.

The foundation program is the method of financing most commonly associated with elementary-secondary education. The state determines the value of an FTE and pays that amount times the FTE generated by the college. The FTE may be weighted-- that is, different dollar amounts per FTE may be set for various programs. Along with the FTE funding a specific amount of local effort is required. The state may also determine the tuition rate. The state supplies the amount of FTE dollars less the local effort and/or tuition income. This approach can also be disequalizing, with richer districts able to raise much greater revenue because of their tax base, unless some control is placed on local effort.

The power equalizing system of finance is used by several states for supporting elementary-secondary schools. Power equalizing varies the foundation program approach by not specifying a required tax rate but by guaranteeing each district an equal amount per student for each mill of tax

levied. The college can decide the tax rate to be levied and the state guarantees the college a pre-determined assessed evaluation of tax base per FTE student. The drawbacks to this plan are so severe that no college system has adopted it (Garms, 1978).

Garms' plans are conceptual in nature and not limited to methods currently in use. However, Wattenbarger and Stepp (1979) used the following four categories in describing state funding plans currently used by states. These categories are:

Negotiated funding. This is a flexible plan without an explicit formula. Negotiations are on an individual institution basis by college representatives with the state legislature or a state board with granted authority for such negotiations. These budgets are negotiated annually or biennially depending upon the state where used.

Unit-rate formula funding. Allocations of funds to colleges are on the basis of a formula specifying a fixed number of dollars per defined unit of measure. That unit of measure may be enrollment, student credit hours, full-time faculty positions, or some other defined measure. Full Time Equivalent student (FTE) is the most common unit used.

Minimum foundation plan. This plan insures or guarantees a specified level of support per student or FTE when state and local funds are combined. Districts may generate larger or lesser amounts of the cost depending on the wealth of the district. Even the poorest district will be required to contribute. This plan is similar to one discussed by Garms (1978).

Cost-based program funding. Funds are allocated on the basis of program costs determined by annual studies which relate actual costs to the numbers of students served. Each individual college receives funds related to its own programs. This funding method will be reviewed more thoroughly when the Florida financing plan is analyzed.

According to Wattenbarger and Bibby (1981) only a few major changes in financing patterns have taken place in recent years. The models described in Wattenbarger and Stepp (1979) are still useful. Although some states have altered their formulas, few basic differences have developed. Wattenbarger and Bibby (1981) see increased cost and assumption by the states of funding for community colleges as hampering the responsiveness of the institutions to community needs. They suggest another model, a quality-based funding model, as a vehicle to allow the needed flexibility since they argue that state funding constrains the concept of institutional flexibility which is prerequisite to quality.

Quality-based Funding Model. The quality-based funding model is one which is program/institution specific in that it differentiates among instructional programs and provides each community college the opportunity to set cost levels for each program based on actual costs and institutional priorities. The model is expressed as a five factor algebraic formula:

$$A_p = (F)(B)(C_p)(M_p)(I_p), \text{ where,}$$

A_p = the allocation for program p.

F = the number of FTE students in program p .

B = a prescribed "average" dollar amount per FTE

C_p = the cost factor for program p .

M_p = a "quality maintenance" factor for program p
which is institution-specific

I_p = a "quality improvement" factor for program p
which is institution-specific

The total allocation to the college is the sum of all program allocations.

Components of the Model.

The factors F , B , and C_p . The factor B is constant over all programs and represents the average statewide cost per FTE in all programs combined. Yearly increases in allocations, if any, are generally incorporated into this factor. The program cost factor C_p is computed by dividing the statewide average cost per FTE in program p by the statewide average cost per FTE for all programs. The cost factor is found by analyzing cost data from some previous (base) year and performing the division described. States in which FTE is not used as the funding unit can still apply the model with their established units. Even if the program cost factor (C_p) is not determined by base-year average costs, the model may still be applied.

The quality maintenance factor M_p . The quality maintenance and quality improvement factors in the model allow institutions to provide input into the funding process and target funds to programs that need them

most. Overfunding and underfunding programs are minimized with the inclusion of these two factors. Relative to program funding, the components of quality maintenance might include sufficient funds to

1. offset declining enrollments if the formula is enrollment-driven;
2. offset inflation and rising energy costs;
3. increase personnel salaries consistent with the cost of living in the community college district;
4. maintain existing equipment or replace worn equipment;
5. maintain a given level of assistance to disadvantaged students;
6. maintain library acquisitions at a given level;
7. offset higher costs for small or very large institutions;
8. insure that a certain percentage of courses be conducted by full-time faculty; and
9. maintain a faculty development program.

It must be emphasized that this list is not intended to exhaust those elements which are considered essential to quality maintenance. Different elements may be required in various settings, depending on statewide and institutional priorities.

The quality improvement factor Ip. Relative to program funding, the components of quality improvement might include sufficient funds to

1. raise any of the quality maintenance components above the maintenance level;
2. offer experimental courses, new degree subprograms, or new certificate subprograms;
3. provide alternative learning experiences for students;
4. purchase specialized equipment;
5. increase the ratio of full-time to part-time faculty;
6. enhance program review and evaluation activities.

Again, these elements are offered only as examples.

Specific elements must ultimately depend on state, institutional, and program priorities (Wattenbarger and Bibby, 1981, pp.35, 36, 37).

An analysis of the cost-based plan employed by the state of Florida follows. It is expected that relationships between this particular funding method and instructional salaries may be revealed by this review of Florida's current financing plan.

Florida Community College Funding Formula

Florida's cost-based funding method is computed from aggregations of the individual colleges' costs of providing instruction, plus growth and adjustment factors, and minus student fees and federal funds available.

For computing course, discipline, program, and total college costs, the colleges are grouped as either large colleges or small colleges. The large colleges are those

with enrollments above 1,300 FTE students. The small colleges are those with enrollments less than 1,300 FTE students. The annualized total of FTE students equals the total annual semester hours that students earned (fall through summer) divided by 30 semester credit hours.

The program funding process for determining the state allocation for the colleges is as follows:

- A. An annual cost analysis is performed by each college examining historical records of actual expenditures for the immediate preceding year of operation. This cost-analysis report is submitted to the state in October of each year. The cost-analysis report presents the computed unit cost per course for each course taught at a college. The unit cost per course includes:
 1. A pro-rata share of the teacher's salary allocated in dollars per credit hour. For example, if a teacher teaches 15 credit hours, one fifth of the salary is allocated to a three credit course. (Non-credit courses are converted to credit hour equivalents by dividing contact hours by 27).
 2. A pro-rata share of instructional department costs allocated in dollars per credit hour. For example, if 300 credit hours are taught by a department, one percent ($3/300$) of departmental costs is allocated to a three credit course.

3. A pro-rata share of intermediate costs, college-wide costs, and physical plant operations and maintenance costs allocated in dollars per credit hour equally among all courses taught.

The cost-analysis report exhibits course costs aggregated into discipline costs and discipline costs are aggregated into broad program costs.

The discipline costs and broad program costs are expressed in dollars per FTE student.

- B. The state separates the cost reports submitted into two groups, a small college group and a large college group, and aggregates the data by group.
- C. For each group, the costs per FTE student by discipline and by program are displayed, and a "state-wide average cost" for each discipline and program is computed.
- D. A cost ratio for each discipline is determined by dividing the calculated cost for each discipline by the state-wide average cost for all courses.

$$\text{Example: } \frac{\text{Health Professions}}{\text{Average for all courses}} \frac{\$1800/\text{FTE student}}{\$1000/\text{FTE student}} = 1.8$$

This ratio establishes the differential costs relationship among the various disciplines.

- E. A current year state-wide unitary cost is computed by the state as:

1. The base year state-wide average cost per FTE student.
 2. An added adjustment for economic conditions (calculated from the consumer price index and the wholesale price index and called the economic lag factor).
 3. An added adjustment for equipment.
 4. A subtracted adjustment for student fees and incidental college income.
 5. A subtracted adjustment for federal funds.
- F. The current year state-wide unitary cost is multiplied times the cost ratio for each discipline to produce the current year projected cost per FTE student in each discipline category.
- G. The estimated FTE enrollments by discipline category submitted by the colleges to the state are multiplied times the current year projected cost per FTE student in each of the discipline categories.
- H. The amounts generated in each discipline category are summed to produce the total college allocation.

The program funding process for state allocation for community colleges, which exhibited general cost analyses of discipline and broad program expenditures (which include staff salaries) then led to a review of studies of the specific and extensive determinants affecting teacher salaries. Factors explored next include the economic status of each

community college district, teacher characterization for salary purposes, and, to a limited extent, the effects of unionization on salaries.

Teacher Salary Studies

Elchanan Cohn (1971) studied the determinants of teacher salaries utilizing data from 375 Iowa school districts. Median teacher salaries were used as the dependent variable. Independent variables were school size, number of college hours per teaching assignment, distance from nearest central cities, and teacher salaries in the central city. Multiple regression was the statistical method employed. Number of college hours was the only statistically significant variable related to teacher salaries. In a sub-set of the same data additional independent variables were available. Two of these variables found significant were average educational level of the adult population in the school district and percent of families with income over \$10,000.

Levin (1970) conducted a study of teacher salaries utilizing data from the Coleman study. He found that teacher salaries were affected by teachers' verbal score, sex, years of schooling, type of college from which graduated, years of experience, certification level, and college major. As expected males earned more than females, and experience was a positive factor along with higher levels of certification.

Kasper (1970) sought to find the effects of unionization on teacher salaries. His sample was a cross-section of the 50 states. By using multiple regression analysis he determined the following economic and demographic variables significantly related to teacher salaries: extent of urbanization, sources of revenue, mix of elementary and secondary teachers, and extent of unionization (ratio of non-members to members). Although unionization showed a slight relationship to salaries, it should be noted that Kasper used statewide averages which negate district variations.

King (1979) sought to determine factors which accounted for variation in salaries among New York school districts. After reviewing a number of teacher salary studies, King concluded, "Salaries paid to teachers in a given school district appear to be determined by characteristics of the community and of the teachers themselves." He hypothesized that levels of salary paid by school districts was a function of community characteristics as defined by socio-economic status (SES) variables and teacher characteristics, including experience (EXP) and Training (TRB) levels as well as other quality (QLT) related characteristics. King expressed this production function:

$$S = f (SES, EXP, TRG, QLT)$$

The sample for King's study was 749 school districts of New York State for the 1972-1973 school year. He also studied his sample districts on the basis of being metropolitan or non-metropolitan sub-populations. The three

measures of the dependent variables (teacher salary level) were: the mean salary, the mean plus one standard deviation (high salary level), and the mean minus one standard deviation (low salary level). King chose these amounts rather than actual amounts, i.e., base, M.A., and M.A. plus 30 levels because he believed that computed levels would represent an assessment of actual salaries paid, thus reflecting a combination of hiring and staffing policy decisions of which the salary schedule is only one. Independent variables included community and teacher characteristics, which were grouped and entered into the regression equation based on their position in the production function.

Socio-economic factors explained a large amount of variance in the high salary level. Mean family income of district residents was a strong predictor of salary levels for all populations. The socio-economic status affected salaries two ways. Economic indicators showed that high wealth districts paid higher salaries, but social indicators (percent of minority students) appeared to have an inverse relationship to salaries. This finding can be accounted for by the fact that most minority groups are located in economically depressed city school districts but very often have to pay higher salaries in order to attract teachers to work there.

King also found that teacher experience appeared to be marginally related to salary levels although the teacher training had a strong, direct influence on all salary levels.

When community and teacher characteristics variances were held constant, measures of teacher quality made a significant contribution to the remaining variance. King concluded that socio-economic status of a community is the strongest predictor of salary levels paid to public school teachers.

Hall and Carroll (1973) studied 118 elementary school districts in Cook County, Illinois, for year 1968-1969. Although the study emphasis was to determine unionization effects, the study revealed modest salary effects (salary increase - \$613). This finding was consistent with Kasper's findings. Other variables found significantly related to salaries by Hall and Carroll were: median family income, percentage of white collar workers, size of district, teacher experience, amount of state support, and class size.

Thornton's (1971) study of 83 large city school districts found that about 50 percent of the variance in teacher salaries was accounted for by union strength, average wage rate in the city or surrounding county, and population of the school district.

Lipsky and Drotning (1973) sampled 696 New York school districts in their study. They examined four different types of salaries. Those used were base salary, bachelor's degree plus thirty college hours with seven years of experience, bachelor's plus sixty hours and eleven years of experience and mean salary of district. Their findings indicated district size, percentage of teachers with advanced degrees, percentage of teachers with three or fewer years of experience,

pupil-teacher ratio, property value per pupil, tax effort and debt service as significant variables in determining teacher salaries. Unionization appeared to have had a rather strong effect on salary changes. The data used in this study were collected approximately one year after the passage of the Taylor Law which made it legal for teachers to bargain collectively in New York.

In a similar study Frey (1975) looked at 298 school districts in New Jersey. Frey used starting salary for beginning B.A. teachers as the dependent variable. The independent variables were enrollment, median family income, taxable value of property per pupil, opportunity cost, and collective bargaining. All of these variables had a positive correlation explaining about 60 percent of the variance among districts.

Size of school district, median family or per capita income, size of tax base, and education-experience of the teacher seem to be variables which most influence teacher salaries.

Chambers (1977) evaluated 89 school districts in California for his study on unionization. He found the presence of a union to have a significant impact on teacher salaries. Chambers also found that unified, unionized districts had higher salaries than those districts with fewer unions. The long term effects of unionization were not measured in this study. It was conjectured that the higher increase in salaries would be somewhat lessened if

studied over a longer term. Much of the change can be attributed to "spillover" effects in which surrounding districts tend to raise salaries to levels paid by districts with collective bargaining. Chambers found that district size and pupil/teacher ratio also had significant effects on teacher salaries.

The various studies reviewed differed in scope, data sources, and model specification. Therefore, it is difficult to generalize the findings. One may, however, identify several variables that were reported statistically significant in most of the research.

Comparisons between professional instructional salaries and other industry salaries are difficult because of differences for which there can be no true assessment. (Kershaw and McKean, 1962). Vacations are an example. While there is conclusive evidence (Cohn, 1979) that teachers' salaries as a whole have not kept pace with private industry, there are causes that have not held a place in the studies leading to this conclusion. Many teachers are parents of children who would ordinarily require child care if they were employed in an industry which operated on a twelve month basis, and indeed this is a sizable expense borne by many employees in other industries. How, then, have previous equity studies accounted for this factor in their adjustments? Only recently has the federal government recognized this income discrepancy by instituting tax relief.

In the next section faculty salary studies are reviewed to determine if certain variables appear consistently. Included in this review are studies which investigated the relationship between unionization and faculty salaries.

Faculty Salary Studies

Cohn (1973) used 1970-1971 American Association of University Professors (AAUP) salary and compensation data in his study. The method of analysis was multiple regression. Institutions were used as the units of analysis rather than individual faculty members. The sample included data on salaries and compensation (salaries plus fringe benefits) of faculty by rank and for all ranks combined for 204 institutions. There were 10 dependent variables: average compensation by each of five ranks and average salaries by each of five ranks. The explanatory variables included type of institution, control, region, quality, dynamic changes, size of institution, and per capita income of state where institution was located. Quality of the institution was found to have a significant effect on salaries. Enrollment and salaries show an inverted U curve relationship. Salaries increased up to 30,000 enrollment--after that average salaries appear to decline. Also, institutions in states with higher per capita income pay higher salaries. Cohn did not attempt to isolate effects of unionization; this omission is a shortcoming which the author readily admits.

In a study by Tuckman, B. H. & Tuckman, H. P. (1976) data from the American Council on Education (ACE) were utilized. Using multiple regression analysis, the authors found significant salary related variables to be males, blacks, some fields of instruction, age, and experience. Curiously, salary returns to age peak at about age forty-nine. The authors did further work in 1977 and found no significant differences between the two studies.

Robert Birnbaum (1974) undertook a study matching 88 non-unionized with 88 unionized higher education institutions. His findings show a positive relationship between salaries and collective bargaining. Unionized institution faculty had a \$777 salary advantage over their non-unionized counterparts. He also found that larger differences occurred among four-year institutions. However, Birnbaum failed to control for other variables that may affect faculty salaries.

Brown and Stone (1977) restricted their study to four-year institutions with bargaining agreements rather than matching institutions as Birnbaum had done. Their study failed to find any significant impact resulting from collective bargaining. Although the study revealed significant growth rates in salary among upper ranks, these were accounted for by several institutions with unique characteristics. The authors did not control for other factors.

Morgan and Kearney (1977) used Birnbaum's method of matching union with non-union institutions. The authors compared two different periods: 1969-1970 to 1974-1975.

Morgan and Kearney did not look at faculties by rank but divided the institutions into three categories. Multiple regression analysis was the statistical method employed to control for other variables such as: per capita personal income, institutional control, and institutional quality. Although unionized faculty members showed a slight monetary advantage over non-union faculties, the greatest difference found was in fringe benefits for the unionized faculties. Morgan and Kearney believe that union growth will continue but long range effects cannot yet be determined.

Larry Leslie and Teh-wei Hu (1977) used Morgan and Kearney's model to look at certain financial aspects of collective bargaining. They employed Birnbaum's sampling method of matching institutions. The sample included 150 two-year and four-year institutions. The two dependent variables were faculty compensation and institutional financial data from the Higher Education General Information Survey Files (HEGIS), and average compensation was used for a comparison between 1974-1975 and 1975-1976. Leslie and Hu took the Morgan-Kearney model one step further and analyzed compensation by rank. They found that unionized faculties received approximately \$1,291 more than faculties in non-unionized institutions during 1974-1975. When this comparison was made for 1975-1976 the difference was only \$800. This may mean that earlier differences could be from initial bargaining and should be evaluated over a long time period. The authors also found that senior

faculty members received higher benefits among unionized institutions. This finding does not seem unusual although other studies reviewed revealed that age 50 is the peak and salary differences decline after that.

Leslie and Hu found other variables affected compensation. These included institutional control, per capita income, institutional quality, and percent of faculty holding a doctoral degree. The authors suggested that union affiliation could affect compensation. Again this may be because of the relative newness of unionization among higher education institutions.

Finally, uses of part-time faculty are reviewed in terms of cost control, program and schedule flexibility, and non-unionization. Constructive utilization of the adjunct faculty is also explored.

Adjunct Faculty

"Recent statistics reveal that over fifty percent of the teachers in today's two-year colleges are part-time" (Parsons, 1980, p.vii). The reasons seem to be that budget constraints force administrators to look for alternatives to high personnel costs and adjunct (part-time) faculty utilization provides more budgetary flexibility. The flexibility offered by the use of adjunct faculty has been one way of dealing with inflation, declining enrollments, and program demands of changing clientele. The usual rate of pay offered adjunct faculty is less than half that

paid to full-timers according to Eliason (1980). Fringe benefits, if offered at all to adjunct faculty, are limited. Adjunct faculty, unfettered by union contracts, allow flexibility in scheduling also. This issue becomes increasingly important as colleges offer programs at non-campus sites since it is often easier to hire adjunct faculty to fill those instructional roles.

The National Center for Education Statistics (NCES) projected a small growth through 1982 for employment of full-time faculty in all postsecondary education and a decline of 5.7 percent over the following three-year period ending in 1985. Full-time faculty members are growing older and are less mobile than at any other time in history. According to Tuckman, H. P. & Tuckman, B. H. (1981)

part-timers are neither good nor bad for academe in their own right. Instead they are a diverse group with many different motives and goals. Whether we learn to employ them in a constructive manner will surely be one of the fascinating questions of the '80's (p. 7).

Summary

The literature reviewed suggests the following variables are related to instructional salaries: educational level of district, teacher characteristics (sex, age, race), extent of urbanization, revenue generated, measure of income of district population, teacher training (degree level, years of experience), teacher quality, percentage of white collar workers in community, average wages paid in surrounding area,

population of district, pupil-teacher ratio, enrollment, unionization, quality of institution, publications, field of instruction, and institutional control.

Certain of these variables would not be relevant in a study of community colleges. Publications and research are not an integral part of community college faculty qualitative evaluations. Institutional control would not be appropriate to this study since all institutions studied are governed commonly. Sex or racial discrimination are issues beyond the scope of this study, and therefore sex and race variables were not used. District revenue variables do not seem appropriate because the institutions in this study are fully funded by the state of Florida.

The independent variables chosen for this study are total student FTE, population of district, district per capita Effective Buying Income, percentage of classes taught by adjunct faculty, and unionization. The three dependent variables for each of the twenty-eight districts are mean daily rate of salary for faculty holding doctorates, mean daily rate of salary for faculty with master's degree plus thirty additional hours of preparation, and mean daily rate of salary for faculty with master's degree.

Nothing was found in the literature reviewed to indicate that percentage of classes taught by adjunct faculty had ever been used as a variable in a salary study. Therefore, the addition of that variable in this study may add to that growing body of research on college faculty salaries.

CHAPTER III ANALYSES OF DATA AND FINDINGS

This study sought to determine what relationships existed between selected socio-economic variables and salaries paid to full-time community college instructional personnel in the twenty-eight community college districts in the state of Florida. The related literature and research were reviewed to determine what variables would be included in the study. Five independent variables were chosen. Three measures of salary were used as the dependent variables.

The salary and full-time equivalent data were collected from the Division of Community Colleges, Department of Education, State of Florida, Report of Annual Salaries 1980-81, Full-Time Instructional Personnel and Annual FTE Count by Term 1980-81. The population data were obtained from the Florida County Comparisons, 1981. The population of the counties served by the institution was aggregated where indicated. In some instances an institution serves only one county. The Effective Buying Income per capita was obtained from Sales and Marketing Management Magazine, July 1981. The total Effective Buying Income was tabulated for each district and then divided by the total population to obtain the per capita Effective Buying Income for the

district served by the institution. The percentage of classes taught by adjunct faculty was obtained from a survey sent to all institutions. Those institutions not responding within the time frame allotted were surveyed by telephone to get the percentage of classes taught by adjunct faculty. This method of follow up insured 100 percent response. Many of the survey instruments were not returned until after the statistical analysis was completed; however, the crucial data had been obtained previously by telephone. A list of Florida community colleges with an instructional bargaining unit was obtained from the Division of Community Colleges, Department of Education, state of Florida.

The data were analyzed by Pearson correlations, partial correlations, and standard multiple regression utilizing the Statistical Package For Social Sciences (SPSS). This section presents the data analyses and findings. Initially, the simple correlations are discussed and compared with partial correlation coefficients. The results of the regression equations are then presented and discussed in relationship to the results of the partial correlation coefficients. In presenting the findings, the results are related to the specific questions this study sought to answer. Table 2 identifies the variables studied.

TABLE 2
IDENTIFICATION OF VARIABLES

Dependent Variables	Abbreviation	Algebraic
mean daily rate of salary for full-time instructional personnel with doctorate degree	DOC	Y_1
mean daily rate of salary for full-time instructional personnel with a master's degree plus 30 additional graduate hours preparation	MDL	Y_2
mean daily rate of salary for full-time instructional personnel with a master's degree	MAS	Y_3
Independent Variables	Abbreviation	Algebraic
total FTE of the institution	FTE	X_1
total population of the community college district	POP	X_2
per capita Effective Buying Income of the community college district	EBI	X_3
percentage of classes taught by adjunct faculty	ADJ	X_4
unionization 0= No; 1= Yes (dummy variable)	UNN	X_5

This study sought answers to specific questions dealing with the relationships among salary levels and selected variables. The findings as related to the specific questions of the study follow:

The first question of the study was:

Is there a relationship between the widespread use of adjunct faculty and salaries paid to full-time instructional personnel?

The Pearson's product-moment correlations between mean average daily salaries paid to faculty holding doctoral degrees (DOC) and the percentage of classes taught by adjunct faculty (ADJ) was 0.18, indicating only a weak positive direction in the relationship. The mean of the mean average daily salary was \$108.43 with a standard deviation of \$10.33.

The Pearson correlations between mean average daily salaries paid to faculty with master's degrees plus 30 additional hours of preparation (MDL) and the percentage of classes taught by adjunct faculty (ADJ) was 0.35. This correlation also indicates only a weak positive relationship. The mean of the mean average daily salaries was \$103.67 and the standard deviation was \$11.32.

The product-moment correlation between average daily salaries paid to faculty with master's degrees (MAS) and the percentage of classes taught by adjunct faculty (ADJ) was 0.32, also a weak positive relationship. The mean of the mean average daily salary was \$93.26 with a standard deviation of \$8.62.

TABLE 3
PEARSON CORRELATION COEFFICIENTS

Variable	Y ₁ DOC	Y ₂ MDL	Y ₃ MAS	X ₁ FTE	X ₂ POP	X ₃ EBI	X ₄ ADJ	X ₅ UNN
Y ₁ DOC	1.0000	0.7880	0.8220	0.3263	0.1874	0.1643	0.1807	-0.2912
Y ₂ MDL		1.0000	0.8965	0.4774	0.3320	0.4199	0.3466	-0.2110
Y ₃ MAS			1.0000	0.2592	0.1196	0.2993	0.3166	-0.1937
X ₁ FTE				1.0000	0.8869	0.4505	0.1339	-0.0705
X ₂ POP					1.0000	0.6273	0.1574	0.0208
X ₃ EBI						1.0000	0.3673	0.1527
X ₄ ADJ							1.0000	0.1543
X ₅ UNN								1.0000

The partial correlations indicate a very weak linear relationship between each of the three salary levels and percentage of classes taught by adjunct faculty. Table 4 reports that, after controlling for FTE, POP, and EBI, the third order partial correlations between ADJ and DOC, MDL, and MAS were 0.08, 0.20, and 0.08, respectively. Tables 5, 6, and 7 report the results of the regression analyses. The largest contribution made by the ADJ variable in predicting mean average daily salaries was for the master's plus 30 hours level (MDL). That contribution was only 3 percent of the total variance accounted for in the model.

The multiple regression equations seemed to verify this weak relationship. The percentage of classes taught by adjunct faculty accounted for a minimal amount of the variance when regressed with the three salary categories.

TABLE 4
PARTIAL CORRELATION COEFFICIENTS
3RD ORDER

Variable	FTE X_1 <u>controlling for POP, EBI, ADJ</u>
Y_1 DOC	0.3906
Y_2 MDL	0.5521
Y_3 MAS	0.5083

Variable	POP X_2 <u>controlling for FTE, EBI, ADJ</u>
Y_1 DOC	-0.2897
Y_2 MDL	-0.4606
Y_3 MAS	-0.4771

TABLE 4 - CONTINUED

Variable	EBI X ₃ <u>controlling for FTE, POP, ADJ</u>
Y ₁ DOC	0.1562
Y ₂ MDL	0.4123
Y ₃ MAS	0.4379

Variable	ADJ X ₄ <u>controlling for FTE, POP, EBI</u>
Y ₁ DOC	0.0777
Y ₂ MDL	0.1998
Y ₃ MAS	0.0819

The second question of the study was:

Is there a relationship between the size of population of the community college district and salaries paid to full-time instructional personnel?

The Pearson's product-moment correlations between size of population of the community college district (POP) and salaries paid to faculty holding doctoral degrees (DOC) was 0.19, indicating only a weak positive direction in the relationship.

The Pearson correlation between size of population of the community college district and salaries paid to faculty with master's degrees plus 30 additional hours of preparation was 0.33. This correlation indicates a weak positive relationship.

The zero order correlation between the size of population of the community college district and salaries paid to faculty with master's degrees was 0.12, also a very weak positive relationship. The mean of the population of the community college districts was 346,025 with a standard deviation of 342,417.

The partial correlations indicate a somewhat stronger, although negative, relationship between each of the three salary levels and size of population of the community college district. A negative correlation indicates an inverse relationship, not lack of strength. The partial correlations for the three salary levels with POP when controlling for FTE, EBI, AND ADJ were -0.29 (DOC), -0.46 (MDL), and -0.48 (MAS).

TABLE 5
REGRESSION ANALYSIS OF THE RELATIONSHIP OF THE DEPENDENT
VARIABLE DOC TO INDEPENDENT VARIABLES

Variable	Multiple R	R Square	RSQ Change	Simple R *
UNN	0.34133	0.11650	0.11650	-0.34133
FTE	0.45277	0.20501	0.08850	0.33208
POP	0.47918	0.22961	0.02460	0.18906
EBI	0.53614	0.28744	0.05784	0.17069
ADJ	0.54608	0.29820	0.01076	0.16096

* Simple R: zero order correlation between the dependent variable and each of the independent variables.

Standard error of estimate \$10.50

TABLE 6
REGRESSION ANALYSIS OF THE RELATIONSHIP OF THE DEPENDENT
VARIABLE MDL TO INDEPENDENT VARIABLES

Variable	Multiple R	R Square	RSQ Change	Simple R *
UNN	0.21100	0.04452	0.04452	-0.21100
FTE	0.50390	0.25392	0.20939	0.47743
POP	0.52809	0.27888	0.02496	0.33201
EBI	0.69431	0.48207	0.20319	0.41990
ADJ	0.71581	0.51239	0.03032	0.34656

* Simple R: zero order correlation between the dependent variable and each of the independent variables.

Standard error of estimate \$8.93

TABLE 7
REGRESSION ANALYSIS OF THE RELATIONSHIP OF THE DEPENDENT
VARIABLE MAS TO INDEPENDENT VARIABLES

Variable	Multiple R	R Square	RSQ Change	Simple R *
UNN	0.18419	0.03393	0.03393	-0.18419
FTE	0.37503	0.14065	0.10672	0.34440
POP	0.42055	0.17686	0.03621	0.20113
EBI	0.63339	0.40119	0.22433	0.35431
ADJ	0.63941	0.40884	0.00766	0.25159

* Simple R: zero order correlation between the dependent variable and each of the independent variables.

Standard error of estimate \$7.50

In the standard regression analyses, POP accounted for a minimal amount of the total variance when regressed with the three salary levels. The largest contribution made by the POP variable in predicting mean average daily salaries was for the master's degree level. That contribution was only 3 percent of the total variance accounted for in the model.

The third question of the study was:

Is there a relationship between the size of the institution and salaries paid to full-time instructional personnel?

The size of the institution was indicated by the number of Full Time Equivalent students (FTE) generated by the institution. The Pearson's product-moment correlations between FTE and salaries paid to faculty holding doctoral degrees was 0.33, indicating a positive relationship.

The Pearson correlation between the size of the institution and salaries paid to faculty with master's degrees plus 30 additional hours of preparation was 0.48. This indicates a stronger positive relationship. The Pearson's product-moment correlations between the size of the institution and salaries paid to faculty with master's degrees was 0.26, indicating the weakest relationship of the three salary levels. The mean of the size of the institutions was 6743 with a standard deviation of 7186.

The partial correlations indicate stronger relationships between FTE and each salary level when controlling

for POP, EBI, and ADJ. The partial correlations were 0.39, 0.55, and 0.51 for the doctoral, master's plus 30 hours and master's degree levels of salaries respectively. This variable (FTE) showed the strongest relationship to salary levels. The linear relationship was strong as well as the predictive power as shown by the amount of variance accounted for in the regression models. The size of the institution accounted for 9 percent of the variance in the regression model when doctoral level was the dependent variable. When the master's degree plus 30 hours of additional preparation was the dependent variable, FTE accounted for 21 percent of the total variance. When master's degree level salary was used as the dependent variable, FTE accounted for 11 percent of the total variance in the model.

The fourth question of the study was:

Is there a relationship between full-time instructional personnel salaries and the Effective Buying Income per capita of the community college district?

The Pearson's product-moment correlation between mean average daily salaries paid to faculty holding doctoral degrees and the Effective Buying Income per capita of district (EBI) was 0.16; indicating only a weak positive relationship. The mean of the EBI was \$6824 with a standard deviation of \$1375.

The Pearson's correlation between the mean average daily salaries paid to faculty with master's degrees plus 30 additional hours of preparation and the EBI was 0.42. This correlation indicates a stronger positive relationship.

The Pearson correlation between the mean average daily salaries paid to faculty with master's degrees and the EBI was 0.30, indicating a weak positive relationship.

The partial correlations indicate about the same relationship as found by the Pearson correlations. The third order partial correlations between EBI and DOC, MDL, and MAS were 0.16, 0.41, and 0.44, respectively.

Effective Buying Income accounted for 6 percent of the variance in the regression model when using DOC as the dependent variable. When MDL was used as the dependent variable, EBI accounted for 20 percent of the total variance. Effective Buying Income accounted for 22 percent of the total variance in the regression model using master's degree salary level as the dependent variable.

The fifth question of the study was:

Is there a relationship between the presence of a faculty bargaining unit and full-time instructional salaries of the community college district?

The Pearson's product-moment correlation between mean average daily salaries paid to faculty holding doctoral degrees and unionization (UNN) was -0.29. The zero order correlation between the mean average daily salaries paid to faculty with master's degrees plus 30 additional hours of preparation and UNN was -0.21. The Pearson correlation between mean average daily salaries paid to faculty holding master's degrees and unionization was -0.19. This indicated very weak negative relationships. Unionization did not

appear to be a significant variable in this study. The data were badly skewed because of the small number of unionized institutions.

The variance accounted for by UNN in each of the regression models was .12, .04, and .03 for DOC, MDL, and MAS respectively. Analysis of variance (ANOVA) was run on subpopulations of unionized institutions and non-unionized institutions with each of the three salary levels. The results verified the lack of a significant relationship.

The sixth question of the study was:

When using mean daily salary for individuals holding doctoral degrees as the dependent variable, which independent variables account for the greatest percentage of variance in the mean daily salary?

Standard multiple regressions of salary levels with the five independent variables for the twenty-eight community college districts in the state of Florida were computed (Tables 5,6,7). These analyses provided the multiple correlation coefficient (Multiple R) which is the correlation between a dependent variable and the weighted sum of the independent variables.

The multiple regression program also provided the R Square (R^2) statistic. This statistic does not imply causation, but merely demonstrates the degree of co-variation. For example, the five independent variables had a combined Multiple R of 0.54608, explaining about 30 percent

of the variance in salary level for instructors with doctoral degrees (Table 5).

The R Square Change column gives the actual change accounted for by each variable. For example, unionization accounted for about one-third of the total variance associated with doctoral salaries, and each of the remaining variables accounted for a lesser amount of co-variation. Percentage of classes taught by adjunct faculty (ADJ) accounted for the least. It is of interest that while unionization did not appear to correlate significantly in either simple correlations or ANOVA of subpopulations (Table 9), it did, nevertheless, account for the greatest amount of variance in regression with doctoral degree salaries.

The results of the regression analysis (Table 5) indicate that unionization accounted for 12 percent of the variation followed by FTE with 9 percent, EBI with 6 percent, POP with 2 percent, and lastly ADJ, 1 percent. Unionization had a negative simple correlation of 0.34 in the standard regression results. The standard error of estimate (SEE) was \$10.50. The five independent variables accounted for approximately 30 percent of the variance.

The seventh question of the study was:

Which independent variables account for the largest percentage of variance in the mean daily salary for individuals with master's degrees plus 30 credit hours?

Table 6 shows the results of the regression analysis for dependent variable master's degree plus 30 hours (MDL). The results showed FTE (21 percent) and EBI (20 percent) as accounting for the most variance in this equation as indicated by RSQ Change Column. Unionization accounted for 4 percent followed by ADJ (.03) and POP (.02). Unionization had a negative Simple correlation of 0.21 with salary level MDL. The combined Multiple R for the five independent variables was 0.71581, explaining approximately 51 percent of the variance in salary level MDL.

The eighth question of the study was:

Which independent variables account for the largest percentage of variance in the mean daily salary for individuals at the master's degree level?

Effective Buying Income accounted for 22 percent of the variance and FTE accounted for 11 percent. Population accounted for 4 percent followed by UNN with 3 percent and ADJ with less than 1 percent. Again UNN showed a negative Simple R. All of the variables together accounted for 41 percent of the variance.

Table 7 summarizes the regression results using MAS as the dependent variable. The combined Multiple R for the five independent variables was 0.63941.

The findings suggest that for all three levels of salary, variables may exist which would show stronger relationships to those salary levels than the five

independent variables chosen. Each of the variables chosen did hold a place in the stepwise regression analyses, and while the relationships were extremely weak in some instances, they were selected for the regression. This may suggest that other measures of those variables need to be considered. Because of the relatively small number of cases (28) the number of variables to be selected was limited; therefore, rather than increase the number of variables, different measures of these same variables and/or others are suggested.

Stepwise multiple regression analysis was used on the dependent variable MAS to determine the difference between the results of Standard Multiple Regression and Stepwise Multiple Regression. Multiple R and R Square were exactly the same; however, in stepwise regression the variables were entered in optimum order. For comparative purposes see Tables 5, 6, 7, and 8.

TABLE 8
STEPWISE MULTIPLE REGRESSION
DEPENDENT VARIABLE MAS
SUMMARY TABLE

Variable	Multiple R	R Square	RSQ Change	Simple R
EBI	0.35431	0.12554	0.12554	0.35431
UNN	0.44002	0.06809	0.06809	-0.18419
ADJ	0.46528	0.21642	0.02287	0.25159
FTE	0.48287	0.23316	0.01667	0.34440
POP	0.63941	0.40884	0.17568	0.20113

Mean daily rate of salary for full-time instructional personnel with a master's degree (MAS) was used as the basis for comparison because it is the most widely recognized remunerative level for community college instructional personnel. Stepwise multiple regression confirmed the results of the standard regression analysis that each independent variable accounted for a part of the total variance in the regression equation. In stepwise multiple regression the variable that explains the greatest amount of variance in conjunction with the first will enter second and so on. Each subsequent variable will be entered only if it explains some variance not already accounted for by previous entries.

TABLE 9
ANALYSIS OF VARIANCE (ANOVA)
BETWEEN SUBPOPULATIONS

Dependent Variable	Significance Level
DOC	0.1327
MDL	0.3223
MAS	0.3232

Unionization did not appear to be a significant variable probably because of the small percent of unionized institutions. More careful scrutiny was accomplished by running an analysis of variance (ANOVA) on the subpopulations between the six institutions with unionization and the 22 institutions which are not unionized. Each salary level was used as the criterion variable in an analysis of variance. The SPSS ANOVA program automatically computes and prints out the significance level as shown in Table 9; therefore, it is immediately evident that no significant difference exists between the salary levels of union and non-union subpopulations. This was true with all three levels of salary.

Discussion

Throughout the findings it is apparent that unionization and use of adjunct faculty do not greatly affect the salary levels investigated. It was expected that the

widespread use of adjunct faculty would show a strong relationship with full-time instructional salaries; however, this prediction was not verified by the data. Percentage of classes taught by adjunct faculty (ADJ) did not show strong zero order correlations with the salary levels and became much weaker when partial correlations were computed, holding FTE, POP, and EBI constant.

Percentage of classes taught by adjunct faculty (ADJ) also accounted for a minimal amount of the variance when regressed with the three salary categories. It may be that the use of adjunct faculty should be measured in a different manner but the technique chosen for this study seems reasonable. Perhaps the use of adjunct faculty does not have a relationship to full-time instructional salaries under any conditions. The method of funding in Florida (cost based) may also preclude a relationship between instructional salaries paid and the use of adjunct faculty.

Total Full-Time Equivalent students of the institution (FTE) appears to be related to salaries paid. The funding method in Florida seems to have insured this relationship. The more FTE generated, the more money the institution receives from the state and, of course, the greater effect on salaries.

Per capita Effective Buying Income of the community college district (EBI) is related to salaries to some extent, especially the master's categories. Per capita Effective Buying Income of the community college district (EBI)

indicates the income level of the district, and while it would be expected that salaries would be higher in areas with higher per capita income, it does not necessarily follow that salaries for public institutions are related to other area salaries. Total compensation would need to be considered before comparisons could be made because of the uniqueness of fringe benefits in the field of education.

Population does not appear to be strongly related to the salary levels. Total population of the community college district (POP) accounted for .02, .02, and .04 of the total variation in the three analyses using regression.

In terms of predictive power a widely used statistic is the standard error of estimate, which is simply the standard deviation of actual Y values from the predicted Y_1 values. The standard error of estimate may be interpreted as a sort of "average error" in predicting Y from the regression equation (Nie et al., 1975, p. 325).

The multiple regression equation for master's salary was a fairly strong predictor as shown by the results wherein the five independent variables accounted for 41 percent of the variance. The standard error of estimate was \$7.50; therefore, 68 percent of the time this equation would come within \$7.50 of estimating the master's level salary. The mean was \$93.26 and the standard deviation was \$8.62.

The master's plus 30 salary equation showed that the five independent variables accounted for 51 percent of the variation in the dependent variable (MDL) and 68 percent

of the time would predict that salary within \$8.93. The mean average daily salary was \$103.67 and the standard deviation was \$11.32.

In the doctoral salary equation, the five independent variables accounted for 30 percent of the variation in the dependent variable DOC. The standard error of estimate was \$10.50. In terms of predictive power, doctoral salaries at those institutions could be estimated within \$10.50, around the 68 percent confidence interval. The mean average daily salary was \$108.43 and the standard deviation was \$10.83.

With a cost-based funding formula it could be hypothesized that the more FTE generated the higher the salaries paid to full-time instructional personnel. While a relationship is indicated, it is neither strong nor weak.

The negative partial correlation between the salary levels and population indicates an inverse relationship. Again, the relationship is not strong, but it did strengthen when the effects of the other independent variables were partialled out or held constant. A negative correlation does not indicate lack of strength, merely inversity.

The correlations for Effective Buying Income remained about the same for the first two salary levels but increased considerably at the master's degree level when all other variables were held constant.

When the effects of FTE, population, and Effective Buying Income were held constant the correlations between

salary levels and percentage of classes taught by adjunct faculty decreased, indicating a weak linear relationship.

A strong relationship between salary levels and the independent variables is not indicated; however, the partial correlations do strengthen the notion that each of the chosen variables have a relationship with salaries.

The method of funding in Florida (cost based) may be cause for the lack of relationship between full-time instructional salaries and percentage of classes taught by adjunct faculty. Further analyses are indicated.

CHAPTER IV SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to determine what relationships exist, if any, between selected socio-economic variables and salaries paid to full-time community college instructional personnel in the twenty-eight community college districts in the state of Florida. Further, the study evaluated the importance of other selected factors as they related to instructional salaries, specifically the effects that utilization and use of adjunct instructors may have on full-time professional salaries.

Specific questions were asked regarding the presence of relationships between the three dependent variables and each of the five independent variables. A determination of the most significant relationships to each dependent variable was sought.

Chapter II of this study reported a review of related literature and research. The literature reviewed in Chapter II included the growth of higher education, specifically community colleges, salary studies of teachers, and college faculty salary studies. From the review of these studies, variables were selected for this study.

Chapter III of this study presented the analyses of data and findings. A summary of the findings related to study questions follows.

1. Is there a relationship between the widespread use of adjunct faculty and salaries paid to full-time instructional personnel? In order to determine what relationship, if any, exists between the use of adjunct faculty and salaries paid to full-time instructional personnel, a measure for adjunct faculty was included in the analyses. The percentage of classes taught by adjunct faculty was chosen as the independent variable. This variable (ADJ) was subjected to Pearson correlations, partial correlations, and multiple regression procedures. The Pearson correlations indicate relationships between pairs of variables. The relationships between each of the three levels of salary and percentage of classes taught by adjunct faculty were relatively weak, with the weakest relationship being between doctoral level salary and ADJ. In the partial correlations the relationships weakened considerably when FTE, POP, and EBI were partialled out. The multiple regression equations seemed to verify this weak relationship. A minimal amount of the total variance in the predictive equation was accounted for by ADJ. When a test was run using Stepwise Multiple Regression

procedure ADJ was included in the equation which may indicate that adjunct faculty should be considered but perhaps another study design would be more appropriate. In the review of literature, no study was found which dealt with adjunct faculty as its use may affect full-time instructional salaries. The literature focused more on the exploitive issue associated with adjunct faculty. Certainly, consideration must be given to this segment of the instructional population inasmuch as Parsons (1980) reports that over fifty percent of the teachers in today's two-year colleges are part-time.

Rather than affecting salaries, it may be that class size of full-time instructors is affected by the use of adjunct faculty. The widespread use of set salary schedules may also be a reason for lack of impact from adjunct faculty. The funding formula of a state may also preclude a relationship between instructional salaries paid and the use of adjunct faculty. The issue of adjunct faculty may be better dealt with in another study with a different design.

2. Is there a relationship between the size of population of the community college district and salaries paid to full-time instructional personnel? When the population of the district (POP) was

subjected to correlation, partial correlation, and multiple regression analyses, it was determined that an inverse relationship existed. A weak linear relationship exists as evidenced by the Pearson correlations; however, when partial correlations were computed holding FTE, EBI, and ADJ constant, a somewhat strengthened negative relationship resulted indicating an inverse relationship. In the regression analyses, POP accounted for a minimal amount of the variance in the equations. In many of the salary studies reviewed some measure of the district population was used as an independent variable. According to Chambers (1977) larger districts tended to pay higher wages than smaller districts. The inverse relationship as indicated by partial correlation procedure does not verify Chamber's findings. The conflicting results may be attributed to different controls. Smaller districts may have to offer higher salaries to attract qualified instructors, and larger districts may have a larger supply of qualified persons from which to draw. For the purposes of this study design no conclusive findings were revealed.

3. Is there a relationship between the size of the institution and salaries paid to full-time instructional personnel? The number of Full Time

Equivalent students (FTE) is an indicator of the size of the institution. This was an important variable in studies by Frey (1975), and Cohn (1973). This variable proved to be the strongest variable in this study. A strong linear relationship as well as strong predictive power was indicated. The community college system in Florida is funded by a cost-based formula. This type of funding formula would be strongly related to institutional size.

4. Is there a relationship between full-time instructional personnel salaries and the Effective Buying Income per capita (EBI) of the community college district? Some measure of district income was significant in studies by Morgan and Kearney (1977), Leslie and Hu (1977), Cohn (1973) and others. Effective Buying Income per capita was chosen as the measure of district income for this study. The same procedures were applied to this independent variable with a medium linear relationship evidence by the correlation procedures. The results of the multiple regression analyses were conclusive for the Master's and Master's plus 30 levels, with EBI accounting for a large amount of the variance. A lesser degree of predictive power was associated with EBI when regressed on the doctoral salary level. The EBI of a district

may be indicative of the wealth of that district. Wealthier districts may make more demands on institutions to provide more costly programs which may increase salaries. Certainly instructors would not be willing to work for a low salary if other living costs were higher in a given district. It could be hypothesized that higher EBI indicates wealthier districts which could indicate elevated living expenses. Effective Buying Income (EBI) appears to be related to salaries to some extent; however, there may be other measures of income which would have a stronger relationship with salaries. For instance, median family income, income per capita or Effective Buying Income per household are measures to be considered for other studies.

5. Is there a relationship between the presence of a faculty bargaining unit and full-time instructional salaries of the community college district? Apparently, unionization was not a significant variable for inclusion in this study design. A very weak negative correlation was shown by the Pearson correlations. The subpopulations of union and non-union districts were subjected to analysis of variance and there was no significant difference between the two groups. Unionization

accounted for a minimal amount of variance in the regression analyses for master's and master's plus 30 levels of salary. Unionization accounted for the greatest amount of variance in the regression with doctoral level salaries. There have been numerous salary studies which have considered the affects of unionization. Brown and Stone (1977) failed to find any significant impact resulting from collective bargaining. Leslie and Hu (1977) found unionization to be significant. It appears that for every negative result there is a positive result relating to unionism. Studies dealing strictly with salaries and not total compensation probably are not as valid as those which consider fringe benefits. Bargaining is often directed to items other than salary especially in the field of education.

The small number of unionized institutions in this study caused the data to be badly skewed. Probably another design is indicated if unionization is to be dealt with properly.

6. When using mean daily salary for individuals holding doctoral degrees as the dependent variable, which independent variables account for the greatest percentage of variance in the mean daily salary? The results of the multiple regression analysis indicates that unionization accounted for 12 percent of the variation followed by FTE, EBI, POP,

and ADJ. The total variance accounted for was approximately 30 percent. The doctoral level regression analysis resulted in a completely different equation than MDL and MAS. Unionization again showed a negative correlation indicating inversity. Further analyses are indicated for the doctoral level salary. Two-year institutions have not required a doctorate for instructional purposes; therefore, it may be that salaries at the beginning doctoral level are lower than the more experienced personnel with master's plus 30 and master's salaries who have reached the upper levels of salary schedules. This may account for some of the confusion surrounding this particular variable. Other compensation may need to be studied before a definitive conclusion can be drawn.

7. Which independent variables account for the largest percentage of variance in the mean daily salary for individuals with master's degree plus 30 credit hours? Multiple regression analysis shows the amount of variance for each variable in the equation. Full Time Equivalent students and Effective Buying Income per capita were the variables which, combined, accounted for 41 percent of the total variance. Each of the other three independent variables accounted for a

negligible amount of the total variance. From the literature, indications were that institution size and a measure of per capita income were significant variables and this was verified by the results of these analyses. One could conclude that these two measures should be included in any study of salaries.

8. Which independent variables account for the largest percentage of variance in the mean daily salary for individuals at the master's degree level? Effective Buying Income and Full Time Equivalent students, combined, accounted for the major portion of the variance (33 percent). This finding further verifies that these two variables are strongly related to salaries. In another design perhaps different measures of these variables would be more appropriate, but for this study design the chosen measures indicated strong predictive power and their inclusion was justified.

Conclusions

A thorough review of the relevant literature reveals very few salary studies using data from two year institutions. The decision to choose the variables in this study was based on a review of salary studies, many of which utilized data from K-12 public school districts. Most of the studies on institutions of higher education used four-year institutions or

a combination of two and four-year institutions. Because public community colleges are relatively new, there is need for more exploration in the area of wage determination. As more research is completed, a clearer understanding of the variables affecting instructional salaries will be developed. The researcher suggests that one important factor in community college salary variations may be the type of funding formula utilized by the systems investigated.

This study utilized aggregated institutional data. Different relationships may be revealed by studying salaries within institutions. A study of this type would allow the use of different kinds of variables.

From the results of this study it may be concluded that unionization was not a significant variable for inclusion in this study as designed. The small number of unionized institutions in relation to the total caused the data to be badly skewed, also. Although unionization accounted for a larger share of the variance in the doctoral level equation it probably was not a significant variable as indicated by the small negative simple correlation. It is quite possible that no strong relationship was found between salaries and unionization in this study because compensation items other than salaries may be more affected by unions. Nationally, the evidence is not conclusive about the effects of unionization although unionization may become a factor as more institutions become unionized.

Factors other than salary may be affected by the widespread use of adjunct faculty. The flexibility allowed by using less costly part-time staff may have resulted in small student/instructor ratios. Community colleges have a propensity to serve community needs in remote locations. It may be that the use of adjunct faculty allows this service. It could be concluded that further investigation is indicated with a different study design.

The master's salary level equation was fairly strong as shown by the multiple regression results. The five independent variables accounted for 41 percent of the variance. The standard error was \$7.50; therefore, 68 percent of the time this equation would come within \$7.50 of estimating the master's level salary.

The master's plus 30 salary level equation accounted for 51 percent of the variation in the dependent variable and 68 percent of the time would predict that salary within \$8.93.

The doctoral level salary equation accounted for 30 percent of the variation in the dependent variable DOC. The standard error of estimate was \$10.50. In terms of predictive power, salaries could be estimated within \$10.50, around 68 percent confidence interval.

In terms of predictive power, the master's plus 30 and master's levels of salary equations were fairly strong. This may be because these levels are more commonly

associated with two-year institutions. The doctoral level equation probably was not strong because other variables might be more closely related to that salary level. Two-year institutions have not consistently sought instructors with doctorate degrees. Although the relationships between the independent variables and salary levels were not extremely strong, still relationships do exist. This may indicate the need for a closer examination of the endogenous variables and may be cause for a further study of disaggregated institutional data rather than aggregated data of the institution.

Recommendations

Those interested in further research of community college instructional salaries should consider the following recommendations.

First, the population for this study was limited to one state with a cost based funding formula. Conclusions from this study may not be generalizable to states with different methods of funding. Further research may be needed using other states with different funding formulas.

Second, it is suggested that the widespread use of adjunct faculty may be the basis for further study utilizing a different study design. An average of 25 percent of the community college classes were taught by adjunct faculty. However, the use of adjunct faculty was not associated with higher full-time faculty salaries.

Third, it is suggested that any salary study using Florida as the population studied should consider the use of subpopulations as determined by Full-Time Equivalent students rather than grouping all sizes of institutions into one population.

Fourth, it is suggested that further study may be indicated utilizing different measures of salary variables since the doctoral level is not a salary category as common to two-year institutions as it is to four-year institutions.

Fifth, because of the small number of institutions which are unionized, further study may be indicated which analyzes the affects of unionization within the institutions. It may be possible to draw conclusions about the effects of collective bargaining by comparing institutional data before and after unionization.

APPENDIX A

1980-81 School Year

Survey Completed By: _____

Institution: _____

Contact Number: _____

Adjunct Faculty (Part-time) defined as: Non-Tenured, Part-Time
Instructional/Professionals

- 1) Percentage of classes taught by adjunct faculty in 1980-81
_____.
- 2) What is the established pay scale for adjunct faculty?
_____.
- 3) Is adjunct faculty compensated for years of experience with institution? _____.
- 4) Is there a limit to number of hours adjunct faculty may instruct?
Yes _____ No _____ If so, what is limit? _____.
- 5) Do adjunct faculty receive fringe benefits? Yes _____ No _____
If yes, specifically define which fringe benefits _____.
- 6) Do you have a bargaining unit? Yes _____ No _____
 - a) If yes, what is bargaining unit? _____.
 - b) Are adjunct faculty a part of bargaining unit?
Yes _____ No _____
- 7) Are adjunct faculty required to have same educational training as full-time faculty? Yes _____ No _____
- 8) Are full-time faculty members paid at the adjunct pay rates for overloads? Yes _____ No _____ If no, basis for overload pay? _____.

- 9) Are there defined procedures and criteria for the evaluation of adjunct faculty? (other than student evaluations)

Yes ____ No ____ Give a brief explanation _____

_____.

- 10) Do you have a handbook for adjunct faculty? Yes ____ No ____

If yes, would you please return a copy of the handbook with this questionnaire.

- 11) Number of adjunct faculty employees 1980-81 school year.

_____.

- 12) Total dollars spent on adjunct faculty 1980-81 _____.

- 13) Total FTE generated by adjunct faculty 1980-81 _____.

APPENDIX B
MEANS AND STANDARD DEVIATIONS OF THE VARIABLES

	Y ₁ DOC.	Y ₂ MDL	Y ₃ MAS	X ₁ FTE	X ₂ POP	X ₃ EBI	X ₄ ADJ	X ₅ UNN
Mean	\$108.43	\$103.67	\$93.26	6743	346,025	\$6824	25.0	0.21
Standard Deviation	\$10.33	\$11.32	\$8.62	7186	342,417	\$1375	10.4	0.42

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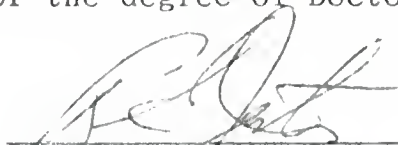
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